



Case review

Foreign bodies ingestion: What responsibility?



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ARTICLE INFO

Article history:

Received 29 May 2013

Received in revised form

19 October 2013

Accepted 7 December 2013

Available online 21 January 2014

Keywords:

Foreign bodies ingestion

Toothpick

Professional responsibility

Medical negligence

ABSTRACT

The ingestion of foreign bodies is one of the most important and difficult emergencies for a physician to diagnose.

Accidental ingestion is more common in children, in patients with dental implants, in individuals with mental disability and in drug users. Voluntary ingestion is found in patients who are psychologically unstable, in prisoners or those who attempt suicide. Foreign bodies may be divided into food as fish bones, chicken bones, food bolus, meat, etc. or real foreign bodies such as orthodontic implants, needles, pins, glass, coins, etc.

The authors present a case of management, from the medicolegal point of view, of a female patient age 80, who complained, for some weeks of modest pain in the left iliac fossa, and afterwards the endoscopy showed a toothpick into the wall of the sigmoid colon. Assessed of the clinical status of the patient presented severe cardiac comorbidities so that before processing the patient to a second resolutive endoscopy, it was necessary to obtain the hemodynamic stability.

However the management of cases of accidental ingestion of foreign bodies is particularly difficult.

Medical errors can arise from the very first contact with the patient resulting in delays in appropriate treatment. The doctor to avoid compromising its position on medical liability, must use all the knowledge and diligence known by the art and science of medicine.

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1. Introduction

The ingestion of foreign bodies can be one of the most important and most difficult clinical cases that for a physician to diagnose.¹

From the literature it is clear that the presence of a foreign body in the organism is not unusual,² especially when concerning specific categories of people selected by age. In Italy, according to official data from the National Institute of Statistics (ISTAT) in 2010, 27% of the so-called "accidental" deaths in children aged 0–4 years is due to suffocation caused by ingestion/inhalation of a foreign body.¹

The ingestion of foreign bodies, voluntary or accidental,³ it is noted also in adults, very often remains undiagnosed for a long time.²

Foreign bodies may be divided into food as fish bones, chicken bones, food bolus, meat, etc. or real foreign bodies such as orthodontic implants, needles, pins, glass, coins, etc.¹

Adults frequently do not provide a correct clinical history, voluntarily or not, in this case the diagnosis and the therapeutic setting become more complex.¹

To date, the imaging test more accurate in cases ascertained or suspected of foreign body ingestion is computed tomography (CT) that allows accurate diagnosis in 14% of cases,⁴ in terms of location, intraluminal or extraluminal, size and nature.⁵

The final diagnosis, however, is most commonly performed with exploratory laparotomy in 53% of cases, endoscopy in 19%, imaging study in 14% and finally autopsy in 12%.⁴

The review of literature shows clearly that even seemingly harmless objects can cause serious and sometimes fatal injuries of internal organs.⁴

In this paper we present a case of accidental toothpick ingestion.

2. Case report

Patient, female, age 80 comes to the Digestive Endoscopy Department, sent by the general practitioner to perform a colonoscopy. The patient complained about moderate pain for some

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weeks in the left iliac fossa and on the advice of the attending physician she had already executed the fecal occult blood test, resulted positive.

The patient, before that event, was in apparent good health (hypertension was present but pharmacologically treated), and there were no signs or symptoms of neurological deficit or psychiatric illness.

Anamnesis reported hysterectomy and oophorectomy associated with hemithyroidectomy for the presence of a thyroid nodule.

Endoscopic examination (colonoscopy) showed numerous diverticula of the sigmoid colon and the presence of a foreign body, which appeared thin and elongated, similar to a toothpick, places like a bridge between the two walls of the bowel, probably penetrated deep into the colonic wall with two holes. The bowels mucosa surrounding the holes of entry of the toothpick showed signs of inflammation (Fig. 1).

It was decided to remove the foreign body at the same endoscopic examination, performing some delicate attempts, unfortunately, with unsuccessful outcome. The procedure of excision was suspended in order to exclude the presence of a phlogistic involvement of the sigmoid extramural and the patient performed imaging exams.

In order to further develop characteristics and retention time of the foreign body inside the bowels, was asked to the patient to remember a more precise time of the toothpick ingestion, probably resulted during ingestion of meat, but the outcome was unsuccessful.

Because of the subsequent aggravation of the cardiac conditions of the patient, who had ischemic heart disease, left bundle branch block, ventricular and supraventricular extrasystoles, mild mitral insufficiency and hypertension, it was decided to start with treatment. During hospitalization were performed blood tests, from which was not observed electrolyte imbalance, but slight increase in white blood cell count, in erythrocyte sedimentation rate and C-reactive protein.

Plain abdominal radiographs was performed and showed no subdiaphragmatic free air or bowel airfluid levels.

The barium enema, performed with double contrast, showed the presence of marked diverticulosis of the descending colon that appeared even more overt at the sigmoid colon, presenting an extension of 5 cm, the wall showed a reduced distensibility compared with diverticulitis.

The abdominal CT scan showed thickening of the wall of the sigmoid colon and the absence of peridiverticular abscesses.

The patient was treated, during hospitalization, with cardiovascular medical therapy (with β -blockers), and when in the days after was obtained hemodynamic stability, she was subjected to endoscopy in order to remove toothpick. During the examination, with the aid of a foreign body clamp, the toothpick was extracted successful and with the use of endoscopic clips, the two inlet holes

located in the wall of the bowel, which were placed in a diametrically opposite way, were closed.

Finally, the patient was discharged from the hospital in excellent health after two day and was given oral antibiotics for 5 more days. The patient did well after six months.

3. Discussion

On the whole, international cases show that accidental ingestion is more common in children, in patients with dental implants, in people with mental handicap and in drug abusers,⁶ in the case described the patient is elderly (80 years old).

The toothpick ingestion, as in our case, is commonly associated with intestinal lesions due to the bilateral ends pointed and the length (about 6.5 cm) of this object. In fact, it was precisely its form to be the cause of transit problems in the intestinal lumen, especially at the level of shrinkage of the winding sections of the gastrointestinal tract, or when it switching from the movable portions of the intestine (ileum and sigmoid colon) to other fixed (cecum and rectum).⁷ The most frequent sites of arrest are the duodenum (25%) and the sigma (14%).⁷

Even if in the majority of cases they cross the gastrointestinal tract⁸ and are eventually eliminated, objects long, hard or sharp (like the toothpick) are responsible for many complications and they have an incidence of 0.2/100.000 inhabitants.⁹

In our case the foreign body was anchored to the walls of the digestive tract and could over time result in perforation (incidence 15%–35%),¹⁰ obstruction,⁵ bleeding,⁸ granuloma,¹¹ or could migrate to adjacent organs causing liver abscesses,¹² fistulas, peritonitis,¹³ or penetrate into the vessels resulting in migration to the heart causing bacterial pericarditis,¹⁴ or to the lungs causing pneumonia or lung abscess,⁴ or its further stay could have fatal results.¹

In literature, in fact, are reported cases of bacteremia from gram positive germs without signs of perforation of the gastrointestinal tract,⁸ as well as cases of death due to ingestion of foreign bodies not treated appropriately.¹⁵

The toothpick ingestion lesion diagnosis was not very easy, not only because patient did not report the ingestion of a foreign body and was not able to place temporally the accidental event, but also because having non-specific symptoms in the first instance was perform the direct abdomen scan and the toothpick, being a wooden object, was radiolucent,¹⁶ on the contrary the ultrasound could show an hyperechoic image and the CT an high-density image.¹⁶

It must be emphasized that the patient presented for some weeks “moderate pain” in the left iliac fossa, which could suggest colic disorders, irritable bowel syndrome or presence of diverticula, and in literature are reported cases where the toothpick presence mimics several other pathologies with presentation of symptoms related to these, such as pneumonia, renal colic, mediastinitis,

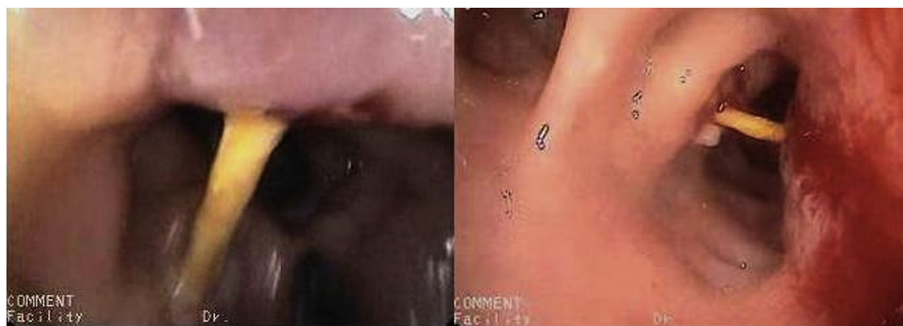


Fig. 1. Endoscopic outcome of position of the toothpick.

shock, intestinal obstruction, esophagitis, appendicitis, gastritis and peptic ulcer.^{1,4,5}

Furthermore the patient did not show symptoms related to acute abdomen and the accused abdominal pain are explained by the increase of intestinal peristalsis at the toothpick level, during normal relaxation due to gastrocolic reflex.

However at the TC and at the barium enema was detected an inflammation and thickening of the sigmoid colon as well as diverticular formations not associated with bowel obstruction, and at the direct abdomen were not reported free air or pneumoperitoneum, which could suggest bowel perforation.

The diagnosis difficulty and “medical error” that would occur both in the choice of treatment or to a delayed/failed diagnosis, after admitting the patient at the hospital, could result in the professional liability, because the mortality rate related to the ingestion of this object is estimated to be around 18%.¹⁴

The variables to be considered in the diagnostic and therapeutic process are many and the appropriate choice should be appropriate to each of these.¹⁷

In this case, as already said, the patient's clinical condition would undoubtedly deteriorated. Even if the medical responsibility would have been limited by the difficulty diagnosis (ingestion not experienced by the patient) and the event is not attributable to an inexperienced, imprudent or negligence behavior on the part of physician.

Another aspect to be considered is the timing of toothpick removal, that may be removed as soon as possible,⁹ because the peristalsis of the intestinal tract could push the object through the intestinal wall, and could cause mucosa perforation, that involves the implementation of surgical and/or endoscopic techniques⁵ depending on the site of the lesion and on the comorbidities of the patient.

In this case, after trying to remove the foreign body in concomitance with the first endoscopy, unsuccessfully, it was decided to proceed with imaging tests, to check through some other way, the depth lesion in the intestinal wall, thickening of the same and the possible presence of free air in the abdominal cavity (sign of perforation), which would have justified the intervention of surgical removal, cause the endoscopic examination would be contraindicated.⁹

The concomitant aggravation of the patient's cardiac comorbidities, and specifically ischemic heart disease, the left bundle branch block, and ventricular and supraventricular extrasystoles, accompanied by mitral insufficiency and hypertension, has delayed the toothpick removal intentionally. In fact, the presence of comorbidity is often presents in these patients,² caused by old age (heart disease, metabolic diseases, etc.), or in situations independent of age as in the case of mental illness or severe disabilities,⁶ that the physician should evaluate before subjecting the patient to any type of intervention, both with regard to the predictability of any complications peri/post-surgery, both for obtaining prior informed consent.²

The risk of perioperative complications, as is well known, depends on the patient conditions before surgery, on the presence of comorbidity and its gravity, but also by evaluation of the anticipated duration of the intervention. In this case, the patient heart disease known could expose the heart to higher stress (surgery), causing serious heart complications and/or death.

The patient, in fact, being affected by ischemic heart disease had a significant cardiac risk stress-inducible, the medical staff, despite the guidelines suggests the immediate toothpick removal, has assessed well the therapeutic priority, deciding to wait for the patient hemodynamic stability.

The right choice of “cardio-protect” the patient first and then remove the toothpick is due to the fact that the object permanence

was not an imminent risk for the patient life, as it could be the heart condition during surgery.

Moreover, the guidelines in the pre-operative suggests that pharmacological therapy with β -blockers, in patients undergoing non-cardiac surgery, has an effect on the restoration of correspondence supply/demand of oxygen, on the redistribution of coronary blood flow to the subendocardium and on increasing the threshold for ventricular fibrillation,¹⁸ so if the doctor had not complied with the time to achieve cardiology stability, could incur in fault and could commit the so-called “common crime” (that can be performed by any person regardless of the possession of special subjective qualifications) in the case of death of the woman, murder, or in the case of complications, personal injury. In these cases, professional misconduct would be inexcusable, because the doctor could predict and prevent the caused harm, which could have been avoided or controlled by adopting a different conduct.

4. Conclusion

The occurrence of accidental of foreign bodies ingestion may cause the physician's responsibility, as seen difficulties do not exist only in the diagnosis but also are dictated by patients comorbidities, the doctor shall examine, in order to discern both the inevitable danger in a case and the risk (although slightly) lesser in the other case, pondering his choices.

Ethical approval

None declared.

Funding

There were no external funding sources for this study.

Conflict of interest

No potential conflict of interest relevant to this article was reported.

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